

## Sequence Listing

<110> APROGEN INC.

<120> HUMANIZED ANTIBODY AND PROCESS FOR PREPARING SAME

<130> PCA30215/APG

<150> KR10-2002-0015708

<151> 2002-03-22

<160> 38

<170> KopatentIn 1.71

<210> 1

<211> 345

<212> DNA

<213> Artificial Sequence

<220>

<223> HEAVY CHAIN of HZV11

<400> 1

cagggtccagc tgggtgcagtc tggagctgaa gtgaagaagc ctggggcctc agtgaaggtt 60

tcctgcaaag cttctggcta caccctcacc agtgcttggg tgaactgggt gcgacaggcc 120

cctggacagg gtcttgagtg gatgggacgg atttacccta gtgggtggaag cactagctac 180

gcacagaagt tccagggcag agtcacaatg actgcagaca aatccacgag cacagtctac 240

atggagctca gcagcctgag atctgaggac acggcgggtgt attactgtgc aagagagtac 300

cggggtgccc gttggggcca aggaactctg gtcactgtct ctca 345

<210> 2

<211> 115

<212> PRT

<213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; HEAVY CHAIN of HZVII

&lt;400&gt; 2

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Ala Pro Gly Ala  
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Ala  
 20 25 30

Trp Met Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
 35 40 45

Gly Arg Ile Tyr Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe  
 50 55 60

Gln Gly Arg Val Thr Met Thr Ala Asp Lys Ser Thr Ser Thr Val Tyr  
 65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Glu Tyr Arg Val Ala Arg Trp Gly Gln Gly Thr Leu Val Thr  
 100 105 110

Val Ser Ala  
 115

&lt;210&gt; 3

&lt;211&gt; 336

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; LIGHT CHAIN of HZVII

&lt;400&gt; 3

gatatcgtga tgacccaaac tccactttct ttgtcggta cccctggaca accagcctct

60

atctcttgca agtcaagtca gagcctctta tatagtaatg gaaaaaccta ttgaattgg 120  
 ttattacaga agccaggcca gcctccacag cgcctaattct atctggtgtc taatcgggac 180  
 tctggagtcc ctgacagggtt cagtggcagt ggatcaggaa cagattttac actgaaaatc 240  
 agcagagtgg aggctgagga tgttggagtt tattactgcg tgcaagggtac acattttcct 300  
 cagacgttcg gtggaggcac caagggtggaa atcaaa 336

<210> 4  
 <211> 112  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> LIGHT CHAIN of HZVII

<400> 4  
 Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly  
 1 5 10 15  
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser  
 20 25 30  
 Asn Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Lys Pro Gly Gln Pro  
 35 40 45  
 Pro Gln Arg Leu Ile Tyr Leu Val Ser Asn Arg Asp Ser Gly Val Pro  
 50 55 60  
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile  
 65 70 75 80  
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Val Gln Gly  
 85 90 95  
 Thr His Phe Pro Gln Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys  
 100 105 110

<210> 5  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Ryu94

<400> 5  
gagaattcac attcacgatg tacttg

26

<210> 6  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HUR43-1

<400> 6  
ctgctgcagc tggacctgac tctggacacc att

33

<210> 7  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HUR44-1

<400> 7  
caggctccagc tgcagcagtc tggacctgaa ctg

33

<210> 8  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220> '  
<223> HUR45-1

<400> 8  
tgggcccttg gtggaggctg cagagacagt gac 33

<210> 9  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HUR46-1

<400> 9  
gcctccacca agggcccatc ggtcttcccc ctg 33

<210> 10  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HUR31

<400> 10  
cagcggccgc tcatttaccg ggggacag 28

<210> 11  
<211> 26  
<212> DNA

<213> Artificial Sequence

<220>

<223> Ryu86

<400> 11

caaagcttgg aagcaagatg gattca

26

<210> 12

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> HUR48

<400> 12

caagatatcc ccacaggtac cagatac

27

<210> 13

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> HUR49

<400> 13

tgtggggata tcttgatgac ccaaact

27

<210> 14

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> HUR50

<400> 14  
cacagatcctt ttgatttcca gcttggc

27

<210> 15  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HUR51

<400> 15  
atcaaaagat ctgtggctgc accatct

27

<210> 16  
<211> 58  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> CK1D

<400> 16  
gcgccgtcta gaattaacac tctccctgt tgaagctctt tgtgacgggc gaactcag

58

<210> 17  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> YM001N

<400> 17  
ccggaattca caticacgat gtacttg

27

<210> 18  
<211> 16  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> YM003

<400> 18  
tgccccccaga ggtgct

16

<210> 19  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> ym257

<400> 19  
acgcattcag tgcttcttgg atgaactggg tga

33

<210> 20  
<211> 31  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> YM258

<400> 20  
atccaagaag cactgaatgc gtagccagaa g

31



<210> 21  
<211> 38  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> YM004

<400> 21  
ccaattcaaa gcggtttttc cattactata taagagggc

38

<210> 22  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> YM009

<400> 22  
gcagccaccg tacgtttgat ttccaccttg gt

32

<210> 23  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Ryu 166

<400> 23  
ggatttgct gcagtcattg tggctctgcc ctggaactt

39

<210> 24  
<211> 27

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Hur 37

<400> 24  
gacaaatcca cgagcacagt ctacatg

27

<210> 25  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Ryu 118

<400> 25  
ctgtggaggc tggcctggct tctgtaataa cca

33

<210> 26  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Ryu 119

<400> 26  
ggccagcctc cacagctcct aatctatctg

30

<210> 27  
<211> 345  
<212> DNA  
<213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; KR127VH

&lt;400&gt; 27

caggtccagc tgcagcagtc tggacctgaa ctggtgaagc ctggggcctc agtgaagatt	60
tcctgcaaag cttctggcta cgcattcagt agttcttggga tgaactgggt gaagcagagg	120
cctggacagg gtcttgagtg gattggacgg atttatcctg gagatggaga tactaactac	180
aatgggaagt tcaagggcaa gggcacactg actgcagaca aatcctccag cacagcctac	240
atgcagctca gcagcctgac ctctgtggac tctgcggtct atttctgtgc aagagagtac	300
gacgaggctt actggggcca agggactctg gtcactgtct ctgca	345

&lt;210&gt; 28

&lt;211&gt; 115

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; KR127VH

&lt;400&gt; 28

Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala	
1 5 10 15	
Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Ala Phe Ser Ser Ser	
20 25 30	
Trp Met Asn Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile	
35 40 45	
Gly Arg Ile Tyr Pro Gly Asp Gly Asp Thr Asn Tyr Asn Gly Lys Phe	
50 55 60	
Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr	
65 70 75 80	

Met Gln Leu Ser Ser Leu Thr Ser Val Asp Ser Ala Val Tyr Phe Cys  
                     85                    90                    95

Ala Arg Glu Tyr Asp Glu Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr  
                     100                    105                    110

Val Ser Ala  
           115

<210> 29  
 <211> 336  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> KR127VK

<400> 29  
 gatattcttga tgacccaaac tccacttatt ttgtcggtta ccattggaca accagcctct 60  
 atctcttgcga agtcaagtca gagcctctta tatagtaatg gaaaaaccta ttgaattgg 120  
 ttattacaga ggccaggcca gtctccaaag cgcctaattct atctggtgtc taaactggac 180  
 tctggagtcc ctgacagggt cactggcagt ggatcaggaa cagattttac actgaaaatc 240  
 atcagagtgg aggctgagga ttggggagtt tattactgcg tgcaagggtac acattttcct 300  
 cagacgttcg gtggaggcac caagctggaa atcaaa 336

<210> 30  
 <211> 112  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> KR127VK

<400> 30  
 Asp Ile Leu Met Thr Gln Thr Pro Leu Ile Leu Ser Val Thr Ile Gly  
 1 5 10 15  
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser  
 20 25 30  
 Asn Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser  
 35 40 45  
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro  
 50 55 60  
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile  
 65 70 75 80  
 Ile Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Val Gln Gly  
 85 90 95  
 Thr His Phe Pro Gln Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys  
 100 105 110

<210> 31  
 <211> 294  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> DP7

<400> 31  
 caggatgcagc tggatgcagtc tggggctgag gtgaagaagc ctggggcctc agtgaaggtt 60  
 tcctgcaagg catctggata caccttcacc agctactata tgcactgggt ggcacaggcc 120  
 cctggacaag ggcttgagtg gatgggaata atcaacccta gtggtggtag cacaagctac 180

gcacagaagt tccagggcag agtcaccatg accagggaca cgtccacgag cacagtctac 240

atggagctga gcagcctgag aictgaggac acggccgtgt attactgtgc gaga 294

<210> 32  
 <211> 98  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> DP7

<400> 32  
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala  
 1 5 10 15  
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr  
 20 25 30  
 Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
 35 40 45  
 Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe  
 50 55 60  
 Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr  
 65 70 75 80  
 Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95  
 Ala Arg

<210> 33  
 <211> 302  
 <212> DNA  
 <213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; DPK12

&lt;400&gt; 33

gatattgtga tgaccagac tccactctct ctgtccgtca cccctggaca gccggcctcc	60
atctcctgca agtctagtca gagcctcctg catagtgatg gaaagaccta ttgtattgg	120
tacctgcaga agccaggcca gccctccacag ctctgatct atgaagtctt caaccggctc	180
tctggagtgc cagatagggt cagtggcagc gggtcagga cagatttcac actgaaaatc	240
agccgggtgg aggcctgagga tgttgggggt tattactgca tgcaaagtat acagcttcct	300
cc	302

&lt;210&gt; 34

&lt;211&gt; 100

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; DPK12

&lt;400&gt; 34

Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly	
1 5 10 15	
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu His Ser	
20 25 30	
Asp Gly Lys Thr Tyr Leu Tyr Trp Tyr Leu Gln Lys Pro Gly Gln Pro	
35 40 45	
Pro Gln Leu Leu Ile Tyr Glu Val Ser Asn Arg Phe Ser Gly Val Pro	
50 55 60	
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile	
65 70 75 80	

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Ser  
                                     85                                    90                                    95

Ile Gln Leu Pro  
                                     100

<210> 35  
 <211> 345  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> HEAVY CHAIN of HZI

<400> 35  
 cagggtccagc tgggtgcagtc tggagctgaa gtgggtgaagc ctggggcctc agtgaagggt 60  
 tcctgcaaag ctcttggtta cgcatcagc agttcttgga tgaactgggt ggcacaggcc 120  
 ccctggacagg gtcttgagtg gattggacgg atttatcctg gagatggaga tactaactac 180  
 gcacagaagt tccagggcaa ggccacactg actgcagaca aatccacgag cacagcctac 240  
 atggagctca gcagcctgag atctgaggac acggcggtct atttctgtgc aagagagtac 300  
 gacgaggctt actggggcca aggaactctg gtcactgtct ctcca 345

<210> 36  
 <211> 115  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> HEAVY CHAIN of HZI

<400> 36  
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Val Lys Pro Gly Ala



1                      5                      10                      15  
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Ala Phe Ser Ser Ser  
                     20                      25                      30  
 Trp Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile  
                     35                      40                      45  
 Gly Arg Ile Tyr Pro Gly Asp Gly Ser Thr Ser Tyr Ala Gln Lys Phe  
                     50                      55                      60  
 Gln Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr  
                     65                      70                      75                      80  
 Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Phe Cys  
                     85                      90                      95  
 Ala Arg Glu Tyr Asp Glu Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr  
                     100                      105                      110  
 Val Ser Ser  
                     115

<210> 37  
 <211> 336  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> LIGHT CHAIN of HZI

<400> 37  
 gatatcttga tgacccaaac tccactttct ttgtcggtta cccctggaca accagcctct 60  
 atctcttgca agtcaagtca gagcctctta tatagtaatg gaaaaacctt ttgaattgg 120  
 ttattacaga agccaggcca gtctccaaag cgcctaattct atctgggtgc taaactggac 180  
 tctggagtcc ctgacagggt cagtggcagt ggatcaggaa cagattttac actgaaaatc 240

agcagagtgg aggctgagga tgttggagtt tattactgcg tgcaaggtag acattttcct 300

cagacgttcg gtggaggcac caaggtggaa atcaaa 336

<210> 38  
 <211> 112  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> LIGHT CHAIN of HZI

<400> 38  
 Asp Ile Leu Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly  
 1 5 10 15  
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser  
 20 25 30  
 Asn Gly Lys Thr Tyr Leu Tyr Trp Leu Leu Gln Lys Pro Gly Gln Ser  
 35 40 45  
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro  
 50 55 60  
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile  
 65 70 75 80  
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Val Gln Gly  
 85 90 95  
 Thr His Phe Pro Gln Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys  
 100 105 110